

Proposed changes to the EEC UN Regulations 29



11 September 2008
Paris



Frontal impact (Test A)

Current UNECE R29. 02

Pendulum energy:

$N \leq 7,0t - 29,4 \text{ kJ}$

$N > 7,0t - 44,1 \text{ kJ}$

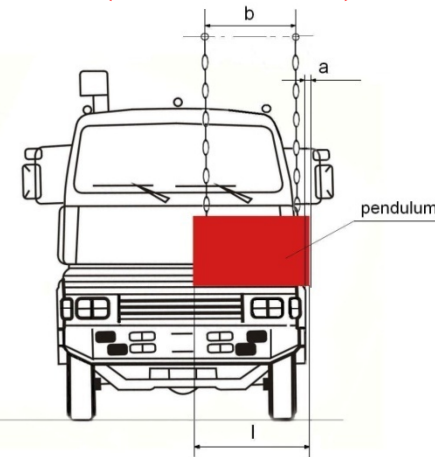
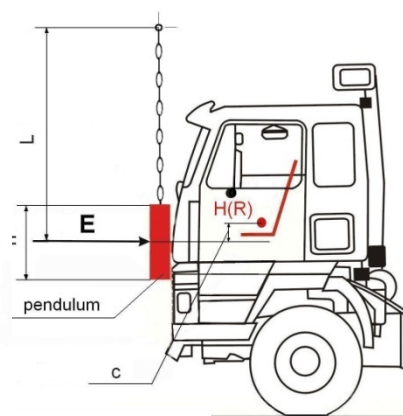
Pendulum:

dimensions: $h=800 \text{ mm}$; $l=2500 \text{ mm}$

weight $m = 1500 \pm 250 \text{ kg}$

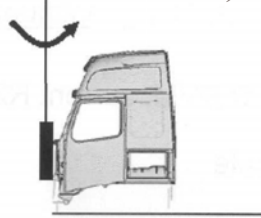


Russian Federation (GRSP/2007/14)



Frontal Impact - OICA proposal

(GRSP/2007/02)



- Impactor size 2500 x 800 mm
- Rigid beams for impactor suspension
- CG: 50 mm below R-point
- CG in median longitudinal plane of truck
- $N2 > 7.5 \text{ t GVM}$ and $N3$: 50 kJ impact energy
- $N1$ and $N2 \leq 7,5 \text{ t}$ - Regulation No. 29 series 02
- At least for $N1$ vehicles, allow UNECE R33 or UNECE R94 as alternative

Pendulum energy:

- $N1 - [15] \text{ kJ}$

- $N2 \leq 7,5t - [25] \text{ kJ}$

- $N2 > 7,5t$ and $N3 - 40 \text{ kJ}$

Pendulum:

- dimensions: $h=600 \text{ mm}$; $l=1000 \text{ mm}$

- weight $m = 1000-1500\text{kg}$

Pendulum position:

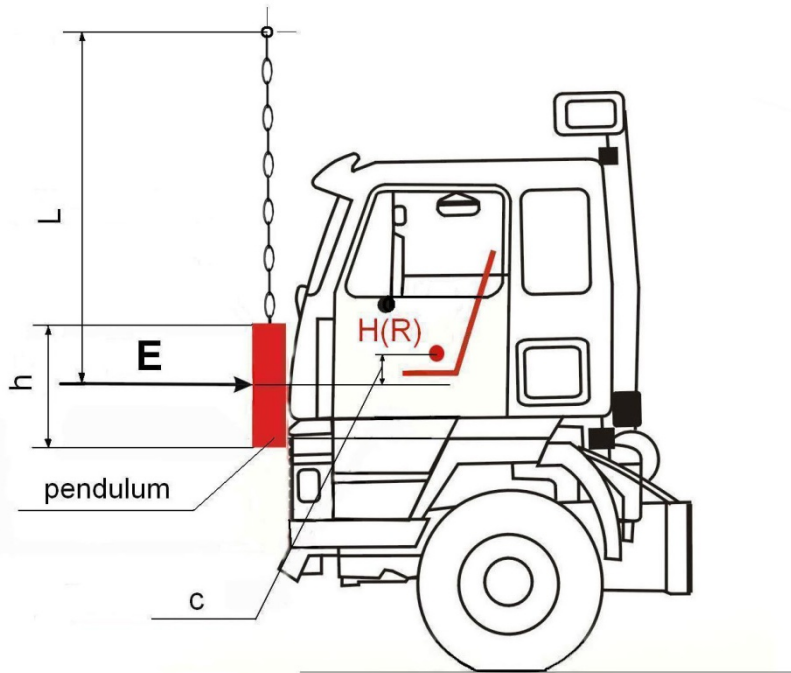
$c = 50 \pm 5\text{mm}$ (50±5 mm below point H (R)),
chain-hanged pendulum, $L \geq 3500 \text{ mm}$, $b \geq 800 \text{ mm}$,
 $a = 30 \text{ mm}$

Test A may be skipped for $N1$ cargo vehicles based on an already tested model that fulfills the requirements of the EEC UN Regulations #94 (or equivalent regulatory documents).



Russian Federation

Test A **New proposal** (as proposed by the Russian Federation)



Pendulum energy:

$N1$ and $N2 \leq 7,5t$ – Regulation № 29 series 02

$N2 > 7,5t$ and $N3$ – 78,4 kJ Impact energy;

At least for $N1$ vehicles, allow UNECE R33 or UNECE R94 as alternative

Pendulum:

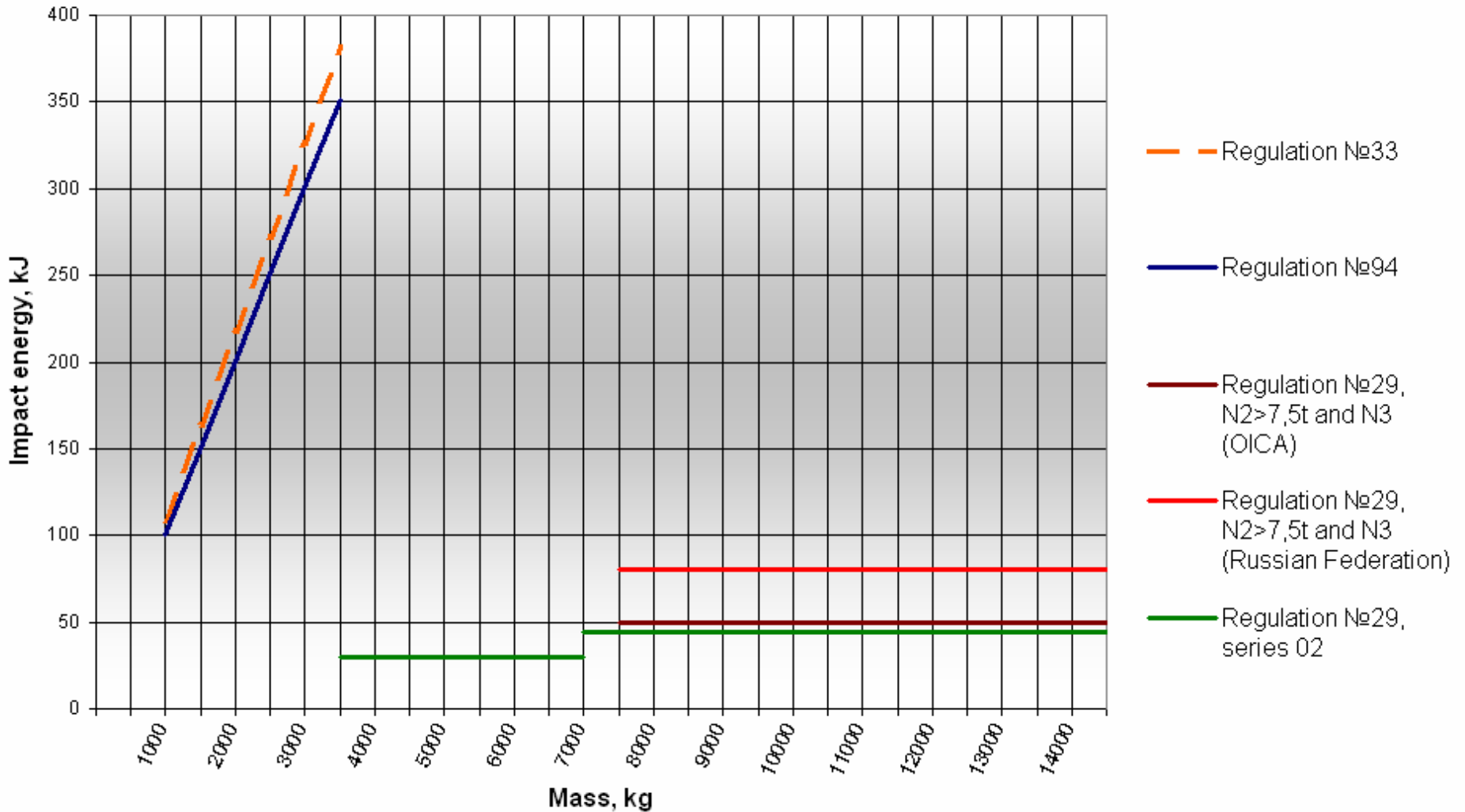
- dimensions: $h=800$ mm; $l=2500$ mm

weight $m = 2500 - 3000$ kg

Pendulum position:

$c=50\pm 5$ mm (50 ± 5 mm below point $H(R)$)

Impact energy

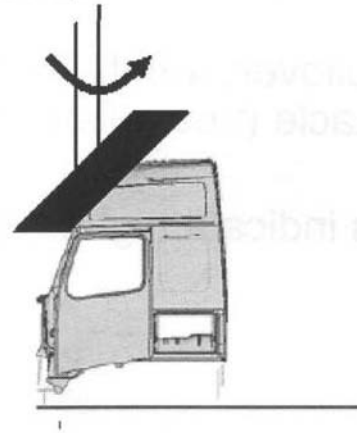


A-pillar test (test B)

OICA proposal – new test

(GRSP/2007/02)

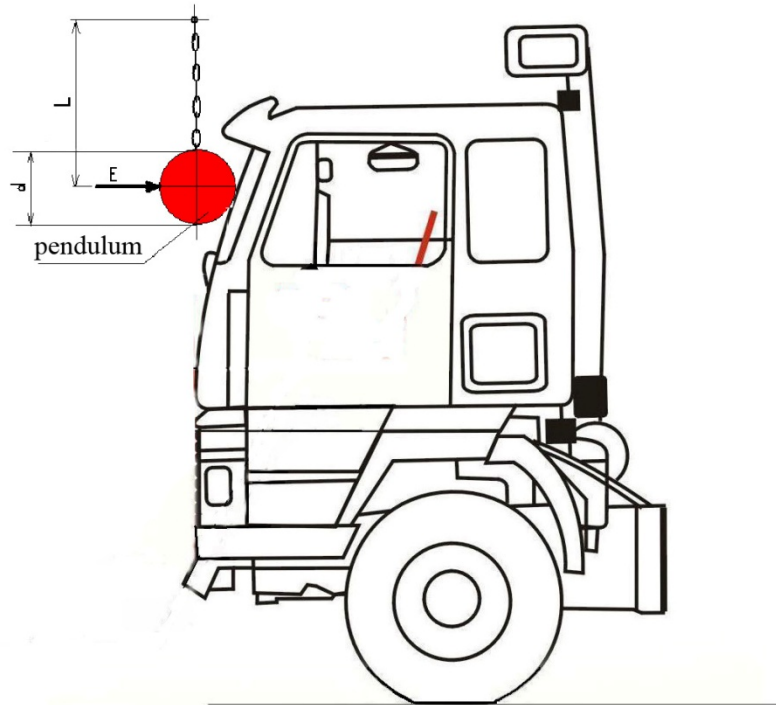
90° rollover with subsequent impact (A-pillar test) – to be included in UNECE R29:



Based on Swedish test, with further improvements:

- Steel pendulum $\geq 1,000$ kg
- Inclined 45° to vertical, 15 ° in horizontal XZ plane
- Impact direction: 15° to vehicle longitudinal axis
- Impact energy 30 kJ

Test B **New proposal** (as proposed by the Russian Federation)



Pendulum energy:

N1 and N2 $\leq 7,5t$ – Regulation № 29 series 02

N2 $> 7,5t$ and N3 – 29,4 kJ Impact energy;

Pendulum:

- dimensions: $d=600$ mm; $l=2500$ mm
weight $m \geq 1000$ kg

Pendulum position:

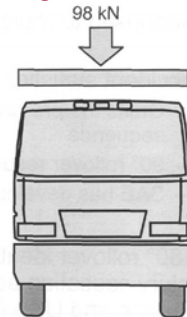
The pendulum shall strike at the point located at the middle of the cabin glass in the vertical plane.

Roof strength testing (Test B)

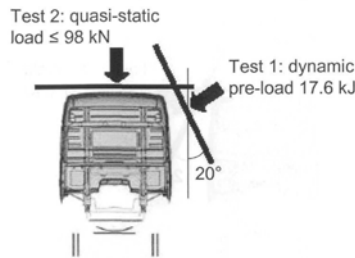
Current UNECE R29. 02

Roof strength test

Device	Rigid flat plate
Load	Equal to max load on front axle(s), max 98 kN



180° rollover – OICA proposal (Test C) (GRSP/2007/02)



Test 1 - dynamic pre-deformation:

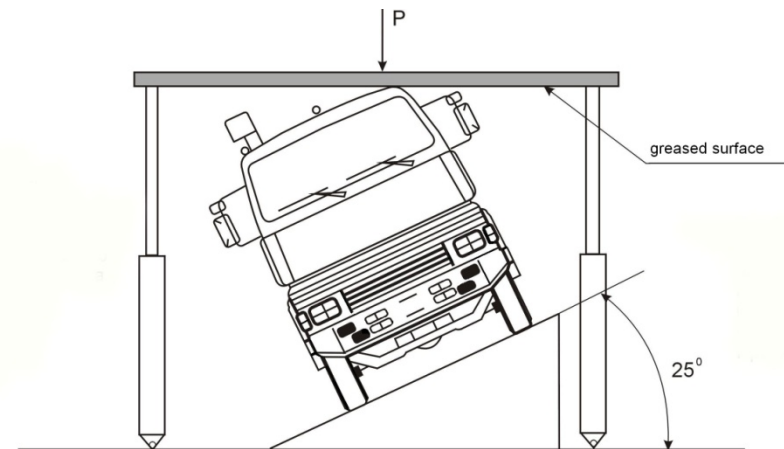
- Rigid platen
- Inclined 20° to the vertical
- Energy level: 17.6 kJ
- Direction of the impact: perpendicular to the longitudinal axis of the cab

Test 2 – quasi-static load:

- On same cab as test 1
- Rigid platen
- Force = maximum authorised load front axle(s), ≤ 98 kN
- Direction of the load: vertical

Russian Federation

(GRSP/2007/14)



Static load

$$P = [K] \times PCH \leq 10T,$$

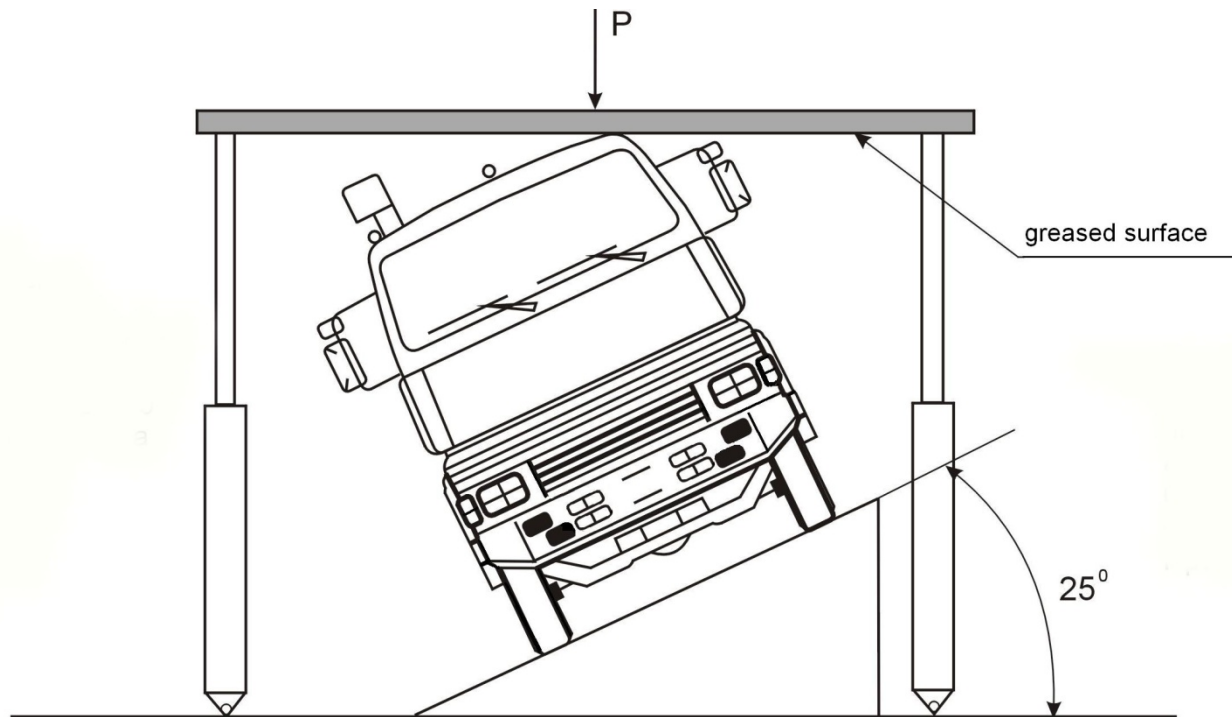
where PCH – full load of the vehicle that falls to the front axle;

K = 2,5 – dynamic load coefficient.

Test B may be skipped for N1 cargo vehicles based on an already tested model that fulfills the requirements of the EEC UN Regulations № 94 (or equivalent regulatory documents).



Test C **New proposal** (as proposed by the Russian Federation)



$N1$ and $N2 \leq 7,5t$ – Regulation № 29 series 02

Static load:

**$N2 > 7,5t$ and $N3$ $P = K \times PCH \leq 10\tau$,
where PCH – full load of the vehicle that falls to the front
axle;**

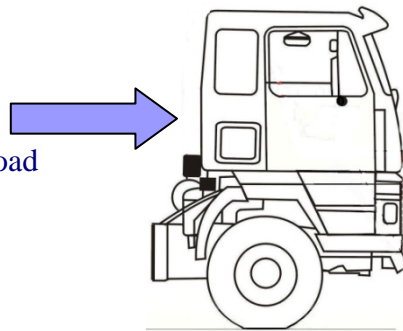
$K = 2,5$ – dynamic load coefficient.

Back part strength testing (Test C)

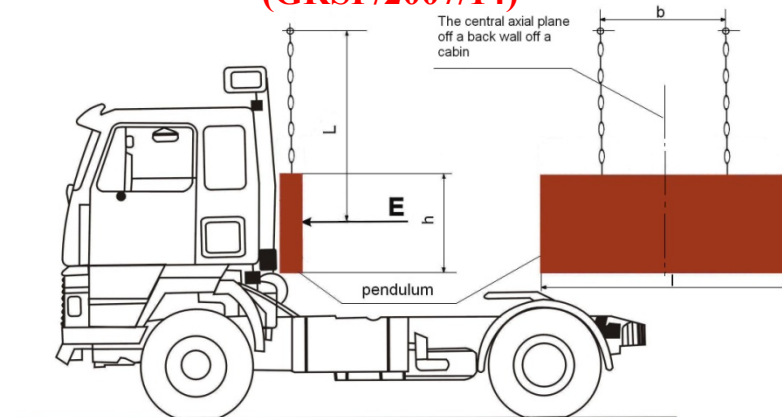
Current UNECE R29. 02

Rear wall test

Load:
1,96 kH per tonne payload



Russian Federation (GRSP/2007/14)



Pendulum energy:

- for N1 Category – 10 kJ
- for N2 Category – 20 kJ
- for N3 Category – 40 kJ

Pendulum:

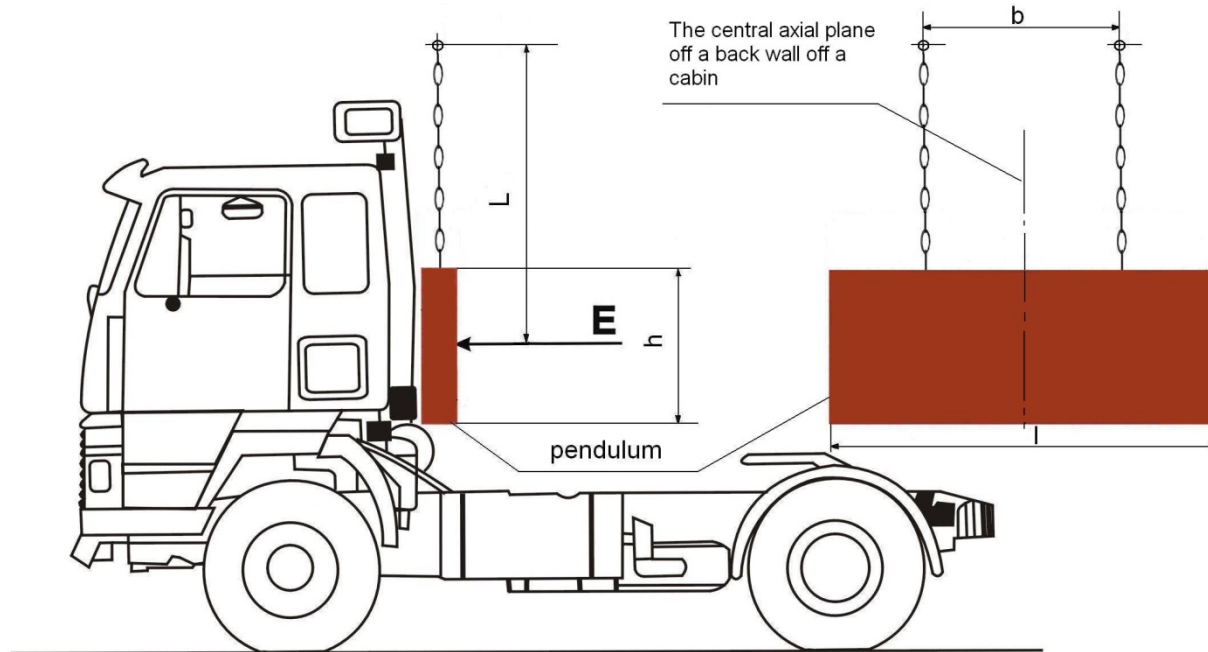
- dimensions: $h=500$ mm; $l=1600$ mm
- weight $m = 1000$ kg

Pendulum position:

- the center of the strike must coincide with the central axial plane of the back wall and be located in the middle between the floor and the roof of the cabin;
- chain-hanged pendulum, $L \geq 3500$ mm, $b \geq 800$ mm

Test D **New proposal**

(as proposed by the Russian Federation)



N1 and N2 \leq 7,5t – Regulation № 29 series 02

Pendulum energy:

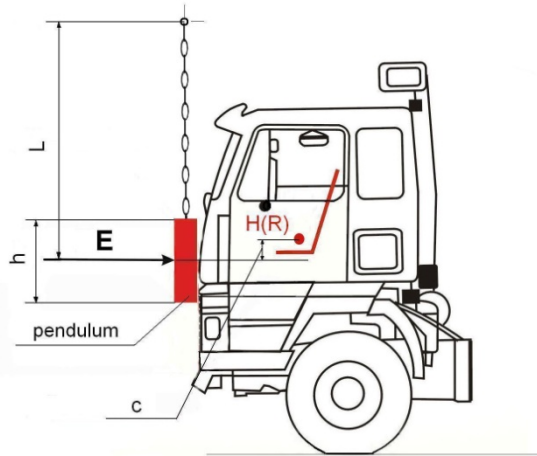
N2 > 7,5t and N3 – 29,4 kJ

Pendulum:

dimensions: h=500 mm; l=1600 mm

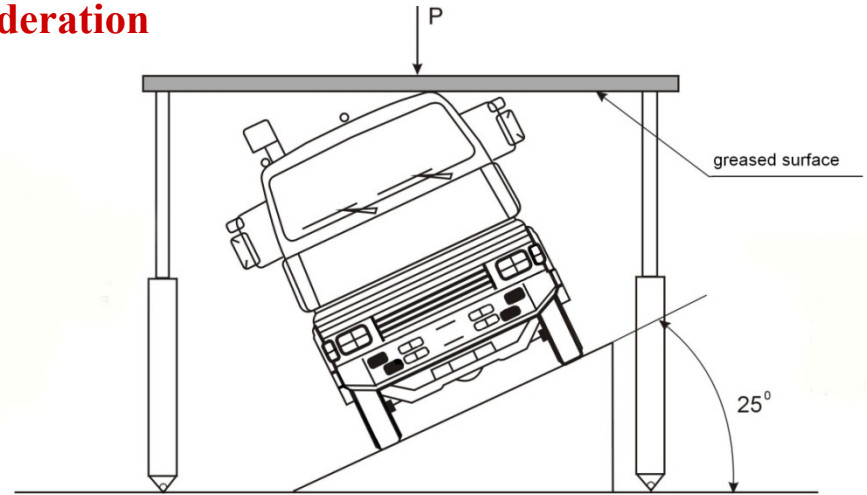
weight m = 1000kg

Test A

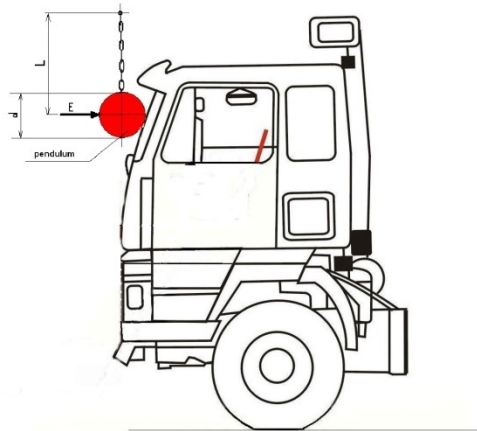


Proposition of the Russian Federation

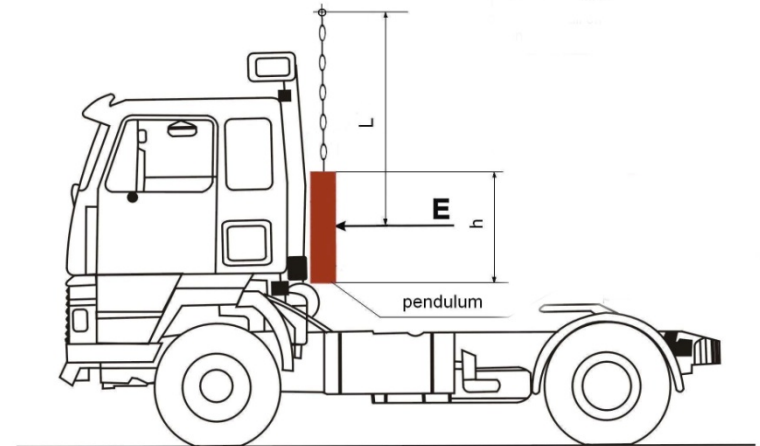
Test C



Test B



Test D



***Thanks
for
attention!***

